
Follow-Up Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve

A Report to the
Governor
and the
Legislature of
the State of
Hawai`i

Report No. 05-13
December 2005



THE AUDITOR
STATE OF HAWAI`I

Office of the Auditor

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OVERVIEW

Follow-Up Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve

Report No. 05-13, December 2005

Summary

We conducted this follow-up of the *Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve*, Report No. 98-6, in response to Senate Concurrent Resolution No. 68, Senate Draft 1, House Draft 1, to assess the progress made with regard to our previous findings. We found that while University of Hawai'i and the Department of Land and Natural Resources have made improvements in managing Mauna Kea and the science reserve, more needs to be done.

In June 2000, the university adopted the Mauna Kea Science Reserve Master Plan. The master plan addressed most of our previous audit findings, including establishing controls for and a method of measuring the impact of future development. The master plan also created a new management structure, housed within the University of Hawai'i at Hilo, comprised of the Office of Mauna Kea Management, the Mauna Kea Management Board, and the Kahu Ku Mauna Council. This management structure has been instrumental in establishing controls for the science reserve, particularly the ranger program, which has increased visitor education and awareness of Mauna Kea's cultural and natural resources. Additionally, the university has established the astronomy precinct, which confines development to 525 acres within the science reserve.

However, the university still faces several management challenges, such as the lack of administrative rule-making authority and weak permit monitoring. Under the general lease, the university is responsible for the protection of cultural and natural resources within its jurisdiction, but currently does not provide protection due to its lack of authority to establish or enforce administrative rules for the science reserve. The university also does not appear to systematically monitor its tenant observatories for compliance with conservation district use permit requirements and was recently fined \$20,000 for violations in May 2004. Management plans for the science reserve also need to be updated to reflect its current use and management, and to provide increased transparency and accountability of the university.

The Department of Land and Natural Resources has also made some positive changes in its management of Mauna Kea. Most notably, the department has tightened permit approval conditions and implemented land transaction monitoring. The department has also implemented the State Land Information Management System (SLIMS), a database that tracks deadlines, to reduce untimely land transactions and ensure documents are completed before any activity or use occurs.

However, we found that the leases, subleases, and permits are dated and that the department, as landowner, has not provided a mechanism to ensure compliance



with lease and permit requirements in protecting and preserving Mauna Kea's natural resources. Although the department is mandated to protect resources, it has not regularly monitored the university for compliance with conservation district use permit requirements. We also found that the department's divisions have not coordinated their efforts in protecting natural resources and function largely independent of one another. Additionally, a management plan for the Mauna Kea Ice Age Natural Area Reserve is needed.

Recommendations and Response

We recommended the University of Hawai'i obtain administrative rule-making authority, revise and update planning documents, and develop, implement, and monitor a comprehensive management plan for natural, cultural, and historic resources of the summit and Hale Pohaku area. We also recommended the university implement and enforce a permit and sublease monitoring system for astronomy precinct observatories.

The University of Hawai'i expressed appreciation for the report's fairness and objectivity in recognizing its progress in managing Mauna Kea and implementing many of the key recommendations made in the previous audit.

For the Department of Land and Natural Resources, we recommended revising and updating leases and permits, implementing and enforcing a permit monitoring system, and increasing communication between the divisions involved in the management of Mauna Kea. We also recommended the department support the Office of Mauna Kea Management's completion of the historic management plan for Mauna Kea, complete a management plan for the Mauna Kea Ice Age Natural Area Reserve, and seek a written legal opinion from the Department of Attorney General regarding the transfer of commercial permitting to the university.

The Department of Land and Natural Resources provided both general and specific comments to the audit, and disagreed with some of the recommendations as being unnecessary or problematic. For example, the department insisted that it monitors and requires permit compliance for major conservation district use permits and, that updating leases, subleases, and permits could "create an irresolvable quandary for the state, lessees, and permit holders." The department does not recognize that parties to a document can agree to change the terms to reflect revisions to statutes, and roles and responsibilities.

Both agencies made points of clarification, some of which we included in the final report.

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Submitted by

THE AUDITOR
STATE OF HAWAI`I

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Foreword

We conducted this audit in response to Senate Concurrent Resolution No. 68, which requested us to follow-up on the recommendations of our *Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve*, Report No. 98-6.

We wish to express our appreciation for the cooperation and assistance extended to us by the University of Hawai'i and the Department of Land and Natural Resources, and other organizations and individuals we contacted during the course of our audit.

Marion M. Higa
State Auditor

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Chapter 1

Introduction

At 13,796 feet, Mauna Kea, located on the island of Hawai‘i, is a distinctive state landmark and home to some of the world’s rarest plant and animal life. It is considered one of the premier sites for astronomical research, hosting top scientists and researchers from around the world at the Mauna Kea Science Reserve. The mountain is rich in resources valued by the general public. Especially valued by the native Hawaiian community are Mauna Kea’s unique spiritual, cultural, historical, and natural resources. Many in the general public also appreciate its recreational opportunities.

In 1997, the Legislature expressed concerns about the State’s management of Mauna Kea and the Mauna Kea Science Reserve. At the time, the University of Hawai‘i Institute for Astronomy was the steward of the Mauna Kea Science Reserve under the university’s lease with the Department of Land and Natural Resources; the department, as keeper of public lands, was responsible for managing Mauna Kea in general. Senate Concurrent Resolution No. 109 of the 1997 legislative session cited allegations of noncompliance with various plans, violations of agreements, and widely differing interpretations of permitted uses. These concerns resulted in Report No. 98-6, *Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve*, which found that the University of Hawai‘i’s management of the reserve did not ensure the protection of natural resources. Additionally, we found that the Department of Land and Natural Resources’ efforts to protect Mauna Kea’s natural resources needed improvement, and that implementation of new technology impacted development within the reserve.

Since the 1998 audit, individuals as well as community and Hawaiian organizations continue to voice concerns and allegations about the university’s and department’s lack of transparency, accountability, and equity regarding management of Mauna Kea and the science reserve. To address these and other concerns, the Legislature requested that we conduct a follow-up to our 1998 audit. Senate Concurrent Resolution No. 68, Senate Draft 1, House Draft 1 (SCR No. 68) requested that we assess the progress made on our previous findings, in light of recent organizational and other changes, such as the University of Hawai‘i’s updated master plan for the Mauna Kea Science Reserve.

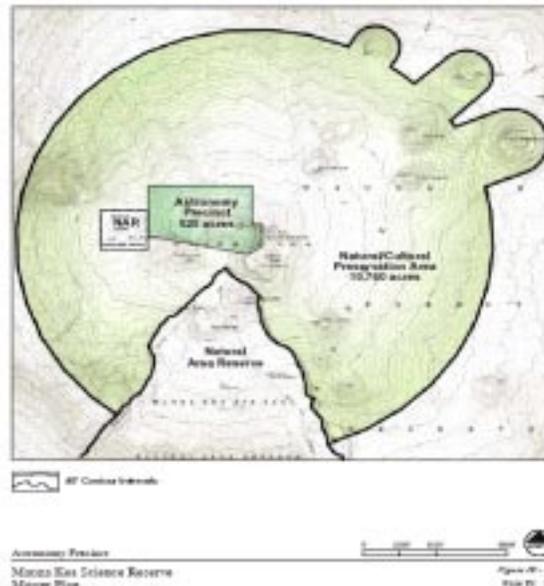
Background

In June 1968, the Board of Land and Natural Resources approved a 65-year lease, General Lease No. S-4191, with the University of Hawai‘i for land at Mauna Kea’s summit. The lease runs to December 31, 2033. Known as the Mauna Kea Science Reserve, the leased lands consist of over 13,321 acres and are part of the conservation district land system established under provisions of Act 187, Session Laws of Hawai‘i 1961, and Act 205, Session Laws of Hawai‘i 1963. In 1981, Executive Order No. 3101 designated 3,893 acres, more or less, on Mauna Kea as the Mauna Kea Ice Age Natural Area Reserve. Part of the designated area was withdrawn from the university’s lease and remains under the jurisdiction of the Department of Land and Natural Resources and is not part of the Mauna Kea Science Reserve. The department is also responsible for other public lands outside the science reserve on Mauna Kea.

Mauna Kea and the Mauna Kea Science Reserve

In its 2000 Mauna Kea Science Reserve Master Plan, the University of Hawai‘i designated 525 acres of the leased lands as an *astronomy precinct* (4.65 percent of the total area defined as the Mauna Kea Science Reserve) at Mauna Kea’s summit. The astronomy precinct, where 13 existing telescopes are located, delineates the area of development of astronomy facilities, roads, and support infrastructure (see Exhibit 1.1).

Exhibit 1.1 Mauna Kea Science Reserve Astronomy Precinct



Source: University of Hawai‘i, 2000 Mauna Kea Science Reserve Master Plan

The Onizuka Center for International Astronomy located at Hale Pohaku has living facilities for up to 72 people working at the summit. Also located at the center are the Visitor Information Station and other support buildings. The station is managed by the Institute for Astronomy's Mauna Kea Support Services. Summit Road, also known as the access road or summit access road, connects the mid-elevation facilities at Hale Pohaku and Mauna Kea's summit. Exhibit 1.2 shows a list of existing and proposed observatories at the Mauna Kea Science Reserve.

The university's Mauna Kea-related organizational structures

Responding to the prior audit's recommendations, the University of Hawai'i developed the 2000 Mauna Kea Science Reserve Master Plan that recommended a new management structure for the science reserve. The new structure would include three new major components that would supplant the Institute for Astronomy as manager of the science reserve: the Office of Mauna Kea Management, the Mauna Kea Management Board, and the Kahu Kupuna Council. The institute remains under the jurisdiction of the chancellor of the University of Hawai'i at Mānoa, while the Office of Mauna Kea Management is under the authority of the chancellor of the University of Hawai'i at Hilo. The institute's responsibilities for the science reserve are to conduct and coordinate astronomical research, while the Office of Mauna Kea Management is responsible for balanced stewardship of the mountain.

The primary mission of the Institute for Astronomy is to produce the highest quality astronomical research possible. To accomplish this, the institute develops and maintains sophisticated instrumentation and facilities on Mauna Kea. The institute also submits conservation district use permit applications for prospective tenant observatories and is responsible for assuring that development on Mauna Kea best benefits the university and the State.

Mauna Kea Support Services is a service organization within the Institute for Astronomy. It provides maintenance and logistical services to all Mauna Kea observatory facilities and the mid-level facilities at Hale Pohaku. This entity also provides maintenance and ranger service to the Office of Mauna Kea Management. The 2000 Mauna Kea Science Reserve Master Plan calls for most of these services to be transferred to the office but does not specify a deadline for the transfer.

The Office of Mauna Kea Management is responsible for managing the Mauna Kea Science Reserve, Summit Road, and Hale Pohaku. The office also functions as a referral and facilitative agency for issues that are related to the mountain but outside its authority. In addition, the Office of Mauna Kea Management establishes and enforces management policies, the ranger program, and general maintenance and support services.

Exhibit 1.2 Existing and Proposed Observatories at Mauna Kea Science Reserve

<u>Observatory (Aperture Diameter)</u>	<u>Proposed Master Plan Action</u>
University of Hawai'i (0.6 m.)	Redevelop: 2-3 m.
University of Hawai'i (2.2 m.)	Redevelop: 4-12+ m.*
Canada-France-Hawai'i Telescope (3.6 m.)	Redevelop: 4-12+ m.*
United Kingdom Infrared Telescope (3.8 m.)	Redevelop: 4-12+ m.*
NASA Infrared Telescope Facility (3.0 m.)	Redevelop: 4-12+ m.*
Caltech Submillimeter Observatory (CSO) (10 m.)	Remain
James Clark Maxwell Telescope (JCMT) (15 m.)	Remain
Very Long Baseline Array (VLBA) (25 m.)	Remain
W.M. Keck Observatory (Keck I) (10 m.)	Add 4-6 1.8 m. Outrigger Telescopes
W.M. Keck Observatory (Keck II) (10 m.)	Add 4-6 1.8 m. Outrigger Telescopes
Gemini Telescope (8 m.)	Remain
Subaru Telescope (8 m.)	Remain
Submillimeter Array (SMA) (as 6-m. Antennas)	Add 12 Antennas
**New: University of Hawai'i – Hilo	New Site, 1 m. (Instructional)
***New: Conventional Optical/IR	New Site, 4-12+ m.*
***New: Next Generation Large Telescope (NGLT)	New Site, 25+ m.

Note: All new and redeveloped facilities require individual project review and approval. The Next Generation Large Telescope will require the development of new technology.

* It is expected there will be a range of telescope sizes proposed in this group. Exterior dimensions of those on the ridge will be limited by Design Guidelines.

** Located at the University of Hawai'i at Hilo

*** Not yet developed.

Legend: (Observatory Aperture Diameter) m = meter

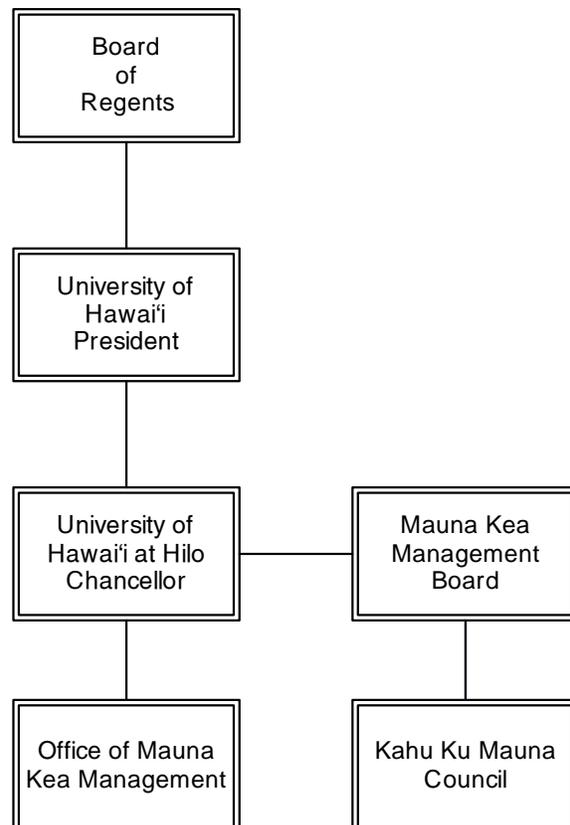
(Proposed Master Plan Action) m = months

Source: University of Hawai'i, 2000 Mauna Kea Science Reserve Master Plan

The Mauna Kea Management Board is attached to the University of Hawai'i at Hilo and serves in an advisory capacity to the chancellor regarding management of the Mauna Kea Science Reserve. As advisor to the chancellor, the Mauna Kea Management Board's function is to guide the operations of the Office of Mauna Kea Management. The board adopts formal rules, organizes the Kahu Ku Mauna Council, and serves as the main community voice for activities and development planned for the science reserve.

The Kahu Ku Mauna Council comprises individuals from the community, including individuals from native Hawaiian organizations, whose role is to advise the Mauna Kea Management Board and the Office of Mauna Kea Management on cultural matters pertaining to the science reserve. Kahu Ku Mauna is translated as "Guardians of the Mountain." Exhibit 1.3 illustrates the relationship of the Office of Mauna Kea Management, its board, and the council within the University of Hawai'i at Hilo.

Exhibit 1.3 Office of Mauna Kea Management Organization Chart



Sources: University of Hawai'i, 2000 Mauna Kea Science Reserve Master Plan and Office of Mauna Kea Management

The university's new master plan intended the Office of Mauna Kea Management to be housed within and funded by the University of Hawai'i at Hilo. Exhibit 1.4 presents the budget history of the Office of Mauna Kea Management from FY2000-01 to FY2004-05. Over the past five years, the agency's budget has increased from \$400,000 to more than \$1.4 million.

***The department's
Mauna Kea-related
organizational
structures***

The Department of Land and Natural Resources is an executive department headed by the Board of Land and Natural Resources. The department manages the public lands of the state, including conservation district lands, forest reserves, wildlife resources, and historic sites. The department regulates all conservation district land use and administers the Natural Area Reserve System. The department's offices and divisions involved with the management of Mauna Kea are the Office of Conservation and Coastal Lands, the Division of Conservation and Resources Enforcement, the Division of Forestry and Wildlife, the Land Division, the State Historic Preservation Division, and the Natural Area Reserves Commission. The organization of these relevant entities is shown in Exhibit 1.5.

The Department of Land and Natural Resources reorganized the land division in 2002, creating the Office of Conservation and Coastal Lands. The office regulates and enforces land use in the State's conservation district, which includes Mauna Kea. The Office of Conservation and Coastal Lands also processes conservation district land use requests and violations, and develops administrative rules affecting the conservation district.

The duties of the Division of Conservation and Resources Enforcement include protecting and conserving the State's lands and natural resources, investigating complaints and violations, and monitoring all leases, permits, and licenses issued by the department. Pursuant to Act 226, Session Laws of Hawai'i 1981, the division's enforcement officers have full police powers to execute all state laws and rules within all state lands. The division's Hawai'i Branch includes Mauna Kea in the east Hawai'i district.

The Division of Forestry and Wildlife develops and manages statewide programs on forest and wildlife resources, as well as natural area reserves and trail and access systems. The division also manages outdoor recreation programs and activities that occur on Mauna Kea state-owned lands.

The management and enforcement of leases, permits, executive orders, and other encumbrances for public lands fall under the Land Division. The division also investigates local land problems, maintains data for the

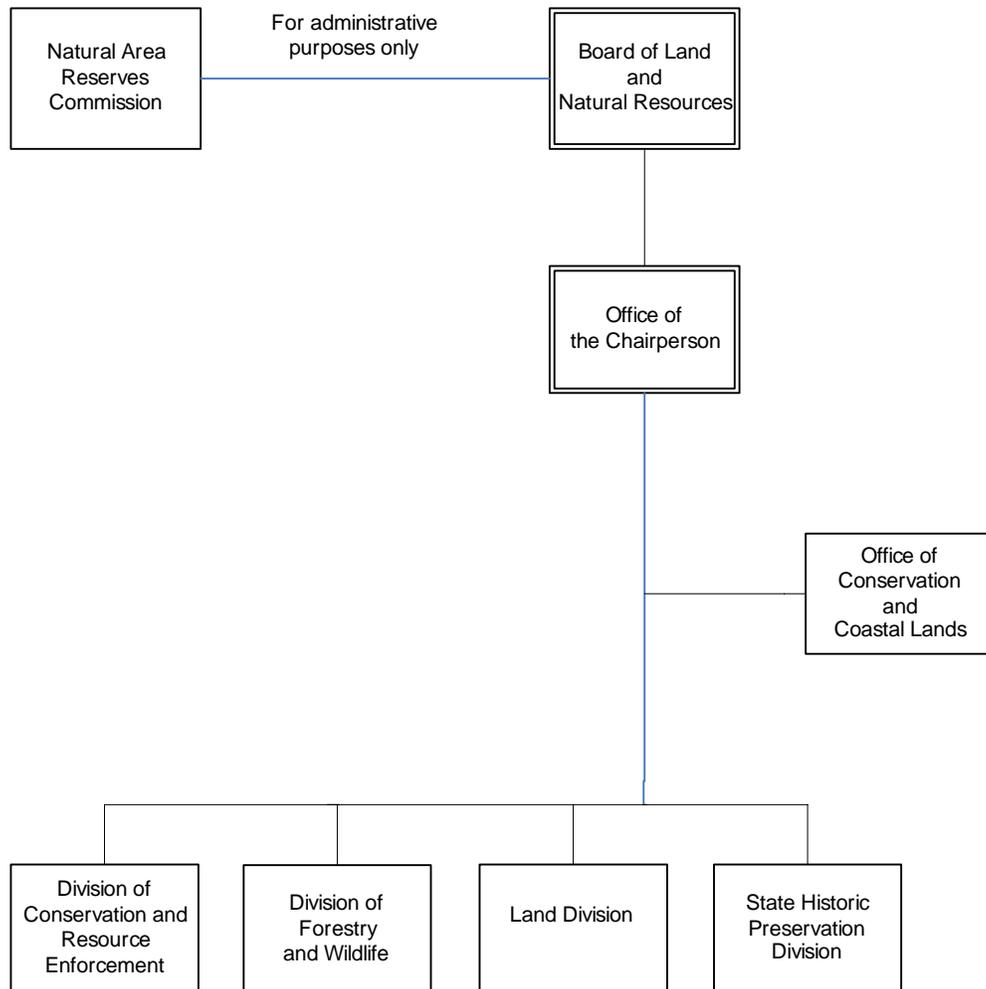
Exhibit 1.4 Office of Mauna Kea Management Allocations and Expenditures by Fiscal Year

	OFFICE OF MAUNA KEA MANAGEMENT				
	ALLOCATION & EXPENDITURES BY FISCAL YEAR				
	2001	2002	2003	2004	2005
ALLOCATION	\$400,000	\$1,009,421	\$1,009,421	\$212,304	\$1,401,022
Unencumbered Funds fr. Prev. Year	-	104,130	268,441	675,926	600
Encumbered Funds	=	<u>69,991</u>	<u>374,063</u>	<u>299,805</u>	<u>349,933</u>
Total Available Funds	400,000	1,183,542	1,651,925	1,188,035	1,751,555
EXPENDITURES					
Salaries	163,469	196,125	348,315	404,721	441,180
Consultants	23,060	110,321	81,892	63,162	61,085
Office Expenses	29,386	54,204	27,413	26,944	16,706
Vehicles	-	-	54,882	977	36,674
Employee Expenses	-	532	1,498	1,566	279
Travel	3,022	2,327	942	5,768	5,528
Ranger Expenses	-	115,103	78,076	195,444	193,932
Visitor Information Station Expenses	-	3,564	22,414	29,708	55,969
Board & Kahu Ku Mauna	2,902	4,718	1,448	1,397	1614
Design Review	-	-	-	-	-
Public Relations Expenses	4,040	13,510	16,767	107,815	29,914
Programs	-	14,444	14,967	-	142,859
Restricted Funds	-	26,190	26,161	-	-
Total Cash Expenditures	(225,879)	(541,038)	(674,775)	(837,502)	(985,740)
Total Encumbered Funds	<u>(69,991)</u>	<u>(374,063)</u>	<u>(299,805)</u>	<u>(349,933)</u>	<u>(361,322)</u>
Year End Unencumbered Funds	104,130	268,441	677,345	600	404,493*

* Note: Planned expenditures not yet encumbered: 1) completion of an archeological inventory for the Mauna Kea Science Reserve (estimated cost \$200,000 - 300,000); 2) securing the services of a consultant to evaluate the commercial tour carrying capacity and recommend a fee structure (estimated cost \$100,000)

Source: Office of Mauna Kea Management

Exhibit 1.5 Department of Land and Natural Resources 2004 Organization Chart



Source: Department of Land and Natural Resources

State Land Information Management System (SLIMS), and serves as the custodian for all official transactions relating to public lands.

The State Historic Preservation Division maintains a program to promote the use and conservation of historic properties, including those on Mauna Kea. In March 2000, the division worked on the Mauna Kea Historic Preservation Plan, Management Components. The University of Hawai'i funded the plan's preparation. This plan is part of the 2000 Mauna Kea Science Reserve Master Plan and was created in response to recommendations of our previous audit.

The Natural Area Reserves Commission is administratively attached to the department. Its staff is in the Division of Forestry and Wildlife. It establishes criteria that are used in determining whether an area is suitable for inclusion within the reserves system. The commission also establishes policies and criteria for the management, protection, and permitted uses of the reserves system. The statewide Natural Area Reserves System was established with the mandate of protecting the best remaining examples of native ecosystems and geological sites on state-managed lands. The system currently includes 19 reserves.

Governing Documents

The main document that defines the relationship between the University of Hawai'i, as lessee, and the Department of Land and Natural Resources, as lessor, is General Lease No. S-4191. The lease, which runs from January 1, 1968, through December 31, 2033, obligates the university to maintain the land in a clean and orderly condition, use the land as a scientific complex, and obtain prior written approval from the department before subleasing or making improvements. It may be terminated at any time by the lessee or for cause by the lessor. The department's reserved rights include hunting and recreation, and trails and access.

Conservation district use permits approved by the Board of Land and Natural Resources include more detail than General Lease No. S-4191. They require that the university be diligent about monitoring its tenant observatories' activities to protect Mauna Kea's natural and cultural resources. In addition, subleases between the university and the observatories generally identify the parties' responsibilities and requirements.

In Spring 1998, the University of Hawai'i created the Mauna Kea Advisory Committee to help plan for future facilities development and to improve management of the science reserve and the Visitor Station at Hale Pohaku. The Mauna Kea Advisory Committee met from June 1998 to August 1999 to discuss existing conditions, management issues, and

the future uses and management of Mauna Kea. The committee held public meetings in Waimea, Kona, and Hilo on the Big Island. During the meetings, some of the issues raised included improving the management of Mauna Kea's resources and limiting the development of astronomy facilities on the mountain. Group 70 International, Inc., the university's contracted consultant, also attended the public meetings and met with community members to discuss possible recommendations for the master plan.

On June 16, 2000, the University of Hawai'i's Board of Regents adopted the master plan as a policy framework for the responsible stewardship and use of university-managed lands on Mauna Kea through the year 2020. At the same time, the Board of Regents called for the immediate establishment of the Office of Mauna Kea Management, the Mauna Kea Management Board, and the Kahu Kupuna Council as the first steps in the implementation process. The Kahu Kupuna Council would later become known as the Kahu Ku Mauna Council. The master plan updated the 1983 Mauna Kea Science Reserve Complex Development Plan and includes a management plan.

According to the master plan, the University of Hawai'i's Board of Regents and the president of the University of Hawai'i have project approval and design review authority over all development in the areas covered under General Lease S-4191. A design review committee assists the university's board and president with interpreting the design guidelines and intent of the 2000 Mauna Kea Science Reserve Master Plan. The Office of Mauna Kea Management and the Mauna Kea Management Board, with input from the Kahu Ku Mauna Council, also review projects for overall conformance to the master plan and provide recommendations to the university president. Since adoption of the master plan, no major project has undergone the complete design review process.

Prior Audits

In our 1998 audit, we identified and described the roles and responsibilities of the agencies involved in the management of Mauna Kea and the Mauna Kea Science Reserve. We also assessed whether management controls were in place to protect the natural resources of the State in the development of Mauna Kea and the Mauna Kea Science Reserve. We found the university's management of the science reserve was inadequate to ensure that natural resources are protected. Our audit also revealed that implementation of new technology impacted development within the Mauna Kea Science Reserve. We found that the Department of Land and Natural Resources' efforts to protect Mauna Kea's natural resources needed improvement.

We also found then that the university's focus on developing Mauna Kea did not allocate sufficient resources to protect other natural resources on the summit. Although the university developed plans that outlined controls for the mountain's protection, many of the plans were submitted late and were weakly implemented.

We concluded that the university's method of limiting development simply by the number of telescopes was insufficient to address the impact of new technology. Our prior audit also revealed that the Department of Land and Natural Resources failed to sufficiently enforce permitting requirements that resulted in the inadequate protection of state resources.

We recommended the university ensure that the Institute for Astronomy begin the planning process for the next master plan. We also advised that the university develop rules and regulations, hire rangers/guards, require the public to register, conduct periodic inspections for trash, remove old equipment, and develop a forum for continuous community input. We further recommended that the university develop new methodology to measure the impact of future development on Mauna Kea.

As to the Department of Land and Natural Resources, we recommended that it: 1) review and rewrite applicable environmental impact statements mitigating measures as specific conservation district use permit conditions; 2) include permit conditions (and time frames) requiring the implementation of management plans; 3) establish controls to ensure the timely completion of administrative requirements; 4) ensure that the enforcement of rules not related to the department clearly rest with the university; 5) complete and implement the Historic Preservation plan; and 6) adopt rules for the Historic Preservation Program, Chapter 6E, Hawai'i Revised Statutes.

See Appendix A for a summary of our findings and recommendations.

Objectives

1. Assess the extent to which findings and recommendations contained in Report No. 98-6, *Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve*, are being addressed.
2. Make recommendations as appropriate.

Scope and Methodology

We examined the University of Hawai'i and the Department of Land and Natural Resources' efforts in addressing findings and implementing

recommendations of our previous audit. In addition, we assessed the interface of the areas of responsibilities of the university and the department and whether the agencies have implemented controls and procedures to ensure coordinated management of Mauna Kea and the science reserve and to avoid any duplication of effort.

We reviewed relevant state and federal laws and rules, literature, memoranda, documents, and files such as various plans and budget documents. We also conducted interviews with several University of Hawai'i office staff and personnel involved with the management of the science reserve, staff from the Department of Land and Natural Resources, and Big Island community groups and Hawaiian organizations.

Our audit was conducted from May 2005 to October 2005 according to generally accepted government auditing standards.

Chapter 2

Improvements in the Management of Mauna Kea and the Mauna Kea Science Reserve Do Not Go Far Enough

While the University of Hawai‘i and the Department of Land and Natural Resources have implemented many of our 1998 audit recommendations, some management areas still need improvement. The university completed a master plan in 2000, as our 1998 audit recommended, and has made organizational changes consistent with the plan to strengthen its oversight of the science reserve. The department has also taken steps to improve its management of Mauna Kea, such as tightening the conditions under which permits are approved, monitoring land transactions, and adopting administrative rules for Chapter 6E of the Hawai‘i Revised Statutes, entitled “Historic Preservation Program.” However, critical management issues, such as the lack of administrative rule-making and enforcement authority, unresolved public access control, weak permit monitoring, and indeterminate management plans, continue to hamper the university’s efforts to protect Mauna Kea’s resources. Furthermore, the department still needs to intensify its efforts to protect Mauna Kea’s natural and cultural resources.

Summary of Findings

1. Despite improvements, the University of Hawai‘i’s management of the Mauna Kea Science Reserve still falls short.
2. Department of Land and Natural Resources’ advancements in oversight need to go farther.

Despite Improvements, the University of Hawai‘i’s Management of the Mauna Kea Science Reserve Still Falls Short

The University of Hawai‘i has taken some positive steps toward strengthening the protection of Mauna Kea’s natural and cultural resources by implementing the 2000 Mauna Kea Science Reserve Master Plan. However, the university has not dealt with certain significant management issues, such as resolving jurisdictional issues with the Department of Land and Natural Resources and monitoring conservation district use permits. Such issues, if left unaddressed, increase the likelihood of harm to the science reserve’s vulnerable environment.

The university has made strides in managing the Mauna Kea Science Reserve

The 2000 Mauna Kea Science Reserve Master Plan updates the 1983 Mauna Kea Science Reserve Complex Development Plan. Early in the master plan's development, the process included input from the Department of Land and Natural Resources and members of the Hawai'i Island community. The master plan called for creation of a new Hilo-based management structure for the science reserve. In response, the Board of Regents established the Office of Mauna Kea Management, the Mauna Kea Management Board, and the Kahu Ku Mauna Council to comprise that structure. These entities have improved the university's management of the science reserve and created a vehicle for dialogue among the mountain's various stakeholders.

Input from the Department of Land and Natural Resources and the community helped complete the master plan

In our prior audit, we noted that the university needed to involve the public and the Department of Land and Natural Resources in the early stages of master plan development. In Spring 1998, the then-university president initiated the planning process by inviting 24 individuals to serve on the Mauna Kea Advisory Committee. These individuals represented the university, the Department of Land and Natural Resources, and the community, including Hawaiian groups. The committee was charged with providing "needed input to the University of Hawai'i and the people of Hawai'i regarding the conditions under which future development should occur on Mauna Kea on the Island of Hawai'i." The then-president also encouraged the committee to hold public meetings.

Two series of public meetings were held between August 1998 and May 1999 in Waimea, Kona, and Hilo. The first series aimed to gather input on the issues of Mauna Kea. The second series presented specific physical and management proposals to the community. Oral testimony offered during the meetings included a broad spectrum of perspectives about the appropriate uses and management of Mauna Kea and the science reserve. A discussion of issues included the negative impact of astronomy on the environment, the benefits of astronomy to the community, the scope of future development, access to Mauna Kea by native Hawaiian cultural practitioners, and the university's lack of credibility based on its past practices on Mauna Kea.

In May 1998, the university retained Group 70 International to provide professional planning services for developing the master plan. The firm worked with the Mauna Kea Advisory Committee to conduct and facilitate public meetings on the island of Hawai'i. In August 1999, the Mauna Kea Advisory Committee submitted its recommendations to the Board of Regents and the then-president. The committee later dissolved, asserting that its charge had been fulfilled.

In reality, however, the master plan remained incomplete. At the university president's request, Hawai'i's senior U.S. senator organized a committee of nine native Hawaiians, six observatory directors, and three senior university officials. This newly formed group worked with a subcommittee of the Board of Regents to finalize the master plan. The document was submitted to the board and approved on June 16, 2000.

The university has identified areas for astronomy development, critical habitats, and a no-build zone

The university's 2000 master plan and the appendices included in the accompanying environmental impact statement contain maps that identify the areas specified in our prior audit's recommendation: 1) areas suitable for types of astronomical developments; 2) critical habitats of plants, invertebrates, and other rare or endangered species; and 3) areas in which no development should be planned (no-build zones). Areas for future development are designated in the physical planning guide of the master plan. Since a consensus on a defined limit for future development could not be reached, the university did not determine a carrying capacity for Mauna Kea. As an alternative, and in an attempt to provide assurance that the entire science reserve would not be considered for future development, the astronomy precinct was designated. The guide identifies an astronomy precinct of approximately 525 acres at Mauna Kea's summit. Current and future astronomy facilities are restricted to the precinct to maintain a close grouping of structures to minimize potential impact to the summit. Currently, the astronomy precinct contains 13 telescopes, including interferometers that require a number of antennas, such as the Smithsonian's Submillimeter Array.

The master plan defines a telescope as "an instrument for collecting and examining electromagnetic radiation," adding that a telescope must have the capacity to collect as well as examine visible light and/or invisible radiation. By this definition, auxiliary light collectors, such as those proposed for the Keck outriggers project, are not "telescopes," since they only collect light and cannot provide astronomy observations. The university still needs to ensure that this approach to defining the scope of future development considers any negative impact on Mauna Kea's resources.

The master plan also emphasizes recycling existing facilities over new development to avoid further disturbance of existing habitat areas and archaeological and land forms. The designation of the astronomy precinct confines development to an area that is less than 5 percent of the science reserve. This confinement is a measurable improvement by the university in minimizing impact on the environment. The remaining areas of the science reserve include 10,760 acres designated as a natural and cultural preservation area. Exhibits 2.1, 2.2, and 2.3 show areas within the no-build zone.

Exhibit 2.1
Undeveloped Pu'u (Hill)



Undeveloped pu'u (hill) - part of the no-build zone.

Source: Office of the Auditor

Exhibit 2.2
Trail to Lele on the Summit



Trail to Lele on the summit - part of the no-build zone where wēkiu bug population has been found.

Source: Office of the Auditor

Exhibit 2.3 Submillimeter Array Antennas



Submillimeter Array antennas adjacent to Pu'u Poliahu, part of the no-build zone.

Source: Office of the Auditor

The master plan has maps of critical habitats of plants and invertebrates including the wēkiu bug (*Nysius Wekiuicola*), which is a candidate for endangered status. At this time, however, there are no officially designated endangered species in the science reserve. Potential fern and lichen habitats have been noted on the flora habitat map. The master plan also includes a natural and cultural resources composite map that identifies current and potential wēkiu bug habitat and archaeological sites showing the relationship between these resources. However, a baseline of data for the entire mountain has yet to be established.

To best protect Mauna Kea's unique resources, the university should conduct and complete a survey of the land under its jurisdiction in a timely manner. As recommended in the master plan's botanical resources survey, the Office of Mauna Kea Management should prepare a comprehensive natural and cultural resources management plan to establish a baseline of information and provide guidance in protecting and enhancing critical habitats and sensitive cultural resources.

The Office of Mauna Kea Management has established certain management controls for the mountain

Since our prior audit, the university has made some improvements of its oversight on the mountain. The Office of Mauna Kea Management's

ranger program has been central to the improvement of resource protection within the science reserve. The program began with the hiring of two rangers in Summer 2001; currently, it comprises five rangers. While the rangers are administratively housed within the Institute for Astronomy's Mauna Kea Support Services, they report to both the support services manager and the Office of Mauna Kea Management's director. This arrangement facilitates Mauna Kea Support Services' provision of technical and maintenance services to the observatories and maintenance and ranger services to the Office of Mauna Kea Management.

New rangers receive cultural, historic, and first responder training to manage public access and monitor the summit. In collaboration with Hawai'i Community College, the Office of Mauna Kea Management provided a two-week training course for the rangers in Summer 2002. The course was also open to the general public and included historic, cultural, physical science, and Hawaiian terminology information on Mauna Kea. In addition, rangers receive first responder and first aid training, and refer to the Mauna Kea Support Services' emergency manual when assisting an injured or ill visitor. They rely on the officers of the Division of Conservation and Resources Enforcement to handle regulatory and statutory violations.

The rangers also provide information on the cultural and historic resources of Mauna Kea to those acclimating or star-gazing at the Ellison Onizuka Center. By educating visitors, the rangers seek to prevent unwitting or intentional damage to the mountain's resources. However, according to the university, the rangers do not register visitors, attributing this decision to the university's lack of authority to promulgate administrative rules.

In addition to monitoring public access and assisting with an evening star-gazing program at the Visitor Information Station, the rangers complete detailed daily reports that include data on private and commercial visitor and vehicle counts, recreational activities, individual observatory inspections for trash and equipment, and safety and health incidents. The rangers each work on the mountain from 7:15 a.m. to 10:15 p.m. for three days and take four days off to account for the effects of the science reserve's high altitude. Two rangers are stationed at the science reserve daily; one at the Hale Pohaku Visitor Information Station and one at the summit. These measures have improved management and documentation of public access and trash control, and educated Mauna Kea's visitors about the importance of caring for its cultural and natural resources.

The Mauna Kea Management Board provides a means for community input

In Fall 2000, the Board of Regents confirmed seven volunteer members of the Mauna Kea Management Board. As the main community voice for activities and development on the mountain, the board complies with the requirements of Chapter 92, HRS, by publicly posting meeting notices and providing for public input during its meetings.

Shortly after being confirmed, the board appointed six individuals to the Kahu Ku Mauna Council, as provided under the board's bylaws, and established community-based committees on environment, Hawaiian culture, and public safety and conduct. The committees published informational brochures on safety and culture to better educate and prepare visitors to Mauna Kea. The rangers then distribute these brochures to visitors. However, the committees have been largely inactive in recent years.

The university still lacks controls in some management areas

Mauna Kea's fragile natural and cultural resources demand responsible stewardship by the university. Although the university has made some improvements in managing the science reserve, it still faces several challenges. These include obtaining administrative rule-making authority, resolving issues on public access control and signage and commercial permitting, and monitoring its sublessees' compliance with conservation district use permit conditions.

Administrative rule-making authority has not been obtained

Our prior audit recommended that the university establish controls to develop and implement rules and regulations for development and public access in the summit and Hale Pohaku area. The university currently has the authority to promulgate administrative rules for specific operations, such as for tuition and for use of its facilities. However, it does not have the authority to promulgate rules to regulate public activities within the Mauna Kea Science Reserve.

The authority to establish and enforce administrative rules would allow the university to control public access as necessary. With that authority, the ranger program could advance beyond merely monitoring access and activities to enforcing rules and citing violators. Opponents to administrative rule-making authority for the university posit that the authority may be abused or decrease public access, specifically for Hawaiian cultural practitioners. However, Chapter 91, HRS, provides a process that requires the university to include public participation and transparency in promulgating administrative rules.

In agreement with the Departments of the Attorney General and Land and Natural Resources, the university attempted to seek rule-making authority. The need for this authority was argued by the university in the Legislature's consideration of Senate Bill No. 904 during the 2005 Regular Session. The bill would have authorized the institution to adopt administrative rules pursuant to Chapter 91, HRS, to regulate public activities on lands under its control, whether owned or leased. However, there was considerable testimony in opposition to the university's efforts, and the measure was deferred in committee. One concern was that the university would be granted "unlimited" rule-making authority. To address this concern, the university plans to introduce another measure in the 2006 legislative session with language focusing on rule-making authority for the Mauna Kea Science Reserve.

Commercial permits also exemplify the university's need for rule-making authority. The university has not yet issued administrative rules governing commercial activities in the science reserve, although the authority to issue permits for such activities was delegated to it by the Board of Land and Natural Resources in 2000. Rules dating back to May 23, 2003 have been drafted for the use, management, and protection of resources within the Mauna Kea Science Reserve. The draft rules include a provision on permit issuance as a possible means to limit public use of the reserve, and also set forth the authority of the Office of Mauna Kea Management to enforce the rules. These rules embody the enforcement authority desired by the office, especially with respect to its ranger program, but remain without official standing.

If the university is to be held accountable for its stewardship, it must balance the enforcement of rules and the granting of public access in order to protect natural and cultural resources. The university should pursue the rule-making and enforcement authority for the science reserve and Hale Pohaku to adequately equip the Office of Mauna Kea Management in meeting its mission of sustainable management and stewardship of the Mauna Kea Science Reserve.

Public access issues remain unresolved

Rangers now monitor some public movement within the science reserve and serve as cultural and historic guides to Mauna Kea's visitors; however, they still lack enforcement authority and rely on the police powers of DOCARE officers. When an incident involving a violation occurs within the science reserve, such as intentional removal of artifacts, rangers complete an incident report and contact DOCARE's enforcement officers. However, these officers are not stationed on the mountain and do not regularly monitor Mauna Kea, nor are they trained to identify cultural and historic sites. The officers consider the science reserve to be within the university's jurisdiction. DOCARE officers also

rely on the rangers to serve as observers and reporters of possible violations within areas on Mauna Kea under the jurisdiction of the Department of Land and Natural Resources, i.e., within the Mauna Kea Ice Age Natural Area Reserve.

Under the 2000 master plan, the Office of Mauna Kea Management is responsible for the management of the science reserve, the summit road, and Hale Pohaku, but the office has not established rules to carry out this responsibility. Because the university lacks authority to promulgate administrative rules, there are currently no rules that cover public access management or control within the science reserve, other than general ones relating to conservation district lands.

The department and the university agreed that the university should be the entity to establish rules for the science reserve. Accordingly, to protect the mountain's cultural and natural resources, the university should obtain the authority to promulgate and enforce administrative rules for the reserve.

Signage issues remain unresolved

Disagreement persists over the efficacy of signage as a protective measure. For some, signage is seen as a device to educate visitors about their possible impact on sensitive summit-dwelling species, such as the wēkiu bug. For example, the master plan's arthropod assessment, which was conducted within selected areas of the science reserve, recommends such signage. The science reserve rangers requested signage for the summit over 18 months ago to identify vulnerable areas, such as *ahu* (shrines) and wēkiu bug habitat. They believe this control measure would assist them in educating the public about the mountain's valuable sites. In addition, this measure could decrease the amount of time the rangers spend keeping visitors away from sensitive areas. The Office of Mauna Kea Management has considered this issue, but has not yet established and implemented signage policies or procedures. This inaction is due, in part, to concerns voiced by others about the potential for signage to attract wrong-doers who intend harm to cultural and natural resources. Vandalism and unintentional harm to important natural and cultural resources also persist. Given this history, the office should consider even the temporary installation of signage to assess its effectiveness.

Exhibit 2.4 shows a snow play area where a wēkiu bug population has been found.

Exhibit 2.4 Road to Observatories without Signage



Road to observatories without signage - areas used for snow play where wēkiu bug population has been found.

Source: Office of the Auditor

The university has not regularly monitored its tenants' compliance with conservation district use permits

Based on our review, it appears that the university does not consider permit monitoring a priority, particularly since most, but not all, of the permit conditions apply during the construction of astronomy facilities. However, permits contain a continuing requirement for adherence to conservation district use regulations. We also found that, since the master plan designates the Office of Mauna Kea Management as the entity responsible for monitoring the university's tenant-permit holders, the Institute for Astronomy, co-applicant for permits, assumes that rangers monitor the observatories for permit violations. However, the rangers do not perform this function, nor are they trained to detect permit violations.

Each of the tenant observatories, through the university's Institute for Astronomy, has had to apply for a conservation district use permit to construct on and use the summit. Once an application has been approved and the permit issued by the Board of Land and Natural Resources, the university is responsible for monitoring its observatory tenant-permit

holder for permit violations. In May 2004, the university was fined \$20,000 by the Department of Land and Natural Resources for permit violations by four observatories. The Office of Conservation and Coastal Lands conducted an inspection of the summit area at the verbal request of the department director as part of the Keck outrigger project contested case. The case was initiated by opponents of the project, which proposes the addition of six to eight outriggers to the two existing Keck observatories. Pursuant to Section 31-e, Chapter 5, Title 13, HAR, no permit application may be processed by the department until any violations pending against the subject parcel are resolved.

The inspection revealed unapproved equipment and construction materials in the summit area. The department considered these violations serious enough to impose a penalty of \$2,000 per violation and an additional \$2,000 for administrative costs. The university and the observatories took corrective action and resolved all of the violations. The university paid the fines in October 2004 but did not request reimbursement from the offending observatories.

Without vigilant monitoring of its observatory tenants for compliance with conservation district use permits, the university risks damage to the summit, as well as other areas of the science reserve used by its tenants. Moreover, tenant violators should bear the full consequences of their infractions, including taking corrective actions and paying fines.

The university's master plan lacks certainty

We found that, although the master plan addresses most of the recommendations of our prior audit, the plan lacks certainty and clarity. The management plan contained in the master plan was not approved by the Board of Land and Natural Resources and does not replace the 1995 Revised Management Plan for the university's management areas on Mauna Kea. A public access management plan, approved by the land board on March 10, 1995, is still in effect, and is used by the Office of Mauna Kea Management in conjunction with the master plan. However, inconsistencies exist between the two documents as we discuss below. Additionally, we found that the master plan's design review process is unclear and has been a source of uncertainty for the Office of Mauna Kea Management and its board. Further, a complete inventory of cultural and natural resources has yet to be compiled.

Management documents are confusing

The Office of Mauna Kea Management oversees two management plans: the 1995 Revised Management Plan and the management plan contained in the 2000 master plan. However, there are inconsistencies between the two documents.

The 1995 plan, for example, places commercial permitting responsibility with the Department of Land and Natural Resources, while the later management plan proposes that the Office of Mauna Kea Management perform this function. The 1995 plan restricts hiking within the university-managed areas, while the 2000 master plan treats hiking as an unrestricted activity. And since the 1995 plan predates the master plan, it makes no mention of the science reserve rangers and the role they play in public access. To further complicate matters, the Department of Land and Natural Resources utilizes a conservation district use application process that requires submittal of a management plan.

In its 2000 master plan, the university acknowledged that changes in plans over the years have resulted in a complex web of responsibility. The university has added to that web by tolerating different management documents without resolving inconsistencies between them or consolidating them into one comprehensive management plan.

The design review process is unclear

In response to our prior audit, the master plan added a design review committee to assist the Board of Regents and the university president in interpreting the design guidelines for future astronomy facility development and project decision-making. The board and president also receive recommendations from the Office of Mauna Kea Management and its board, which are responsible for reviewing projects for overall conformance to the master plan.

In practice, however, the design review process contemplated in the master plan has created considerable confusion for the Mauna Kea Management Board in regards to its role in the process. The Office of Mauna Kea Management has also faced challenges deciphering the design review process. For example, with input from the Kahu Ku Mauna Council, the office decides whether projects are insignificant, minor, or major. These project categories are not defined by the master plan. Rather, the Office of Mauna Kea Management categorizes all development projects proposed for the science reserve accordingly. Although the review procedures identify required stages of approval, they do not state responsibility for oversight of the process. In addition, we found that the appointing authority for the design review committee was transferred from the university president to the Hilo chancellor in a memorandum dated November 2001. The committee has yet to be formally established.

The university needs to revisit the master plan to clarify the design review process and establish clear procedures for the office, its board, and the design review committee to provide effective controls for future development.

Cultural and natural resources have not been completely inventoried

Although the university has implemented some controls to protect cultural and natural resources, more work is necessary to ensure future sustainability. For example, the “Mauna Kea Science Reserve Archaeological Site Inventory: Formal, Functional, and Spatial Attributes,” completed for the master plan’s environmental impact statement in 1999, reports that 93 archaeological sites have been identified within approximately 3,000 acres, or 27 percent, of the science reserve. Of the 93 sites, 76 are shrines, four are adze manufacturing workshops, and three are markers. In this context, shrines include all religious structures, and markers refer to cairns or stone heaps believed to have been built by either surveyors or visitors. The summit is virtually free of archaeological sites because it is believed to have been a sacred precinct that was *kapu*, or restricted, and accessible to only the highest chiefs and priests. This documentation is important to protect Mauna Kea’s cultural resources. To date, however, approximately 73 percent of the science reserve remains to be surveyed. The university plans to begin an archaeological study in Summer 2006 that will include inventorying the science reserve.

Habitats of certain fauna, such as the wēkiu bug, are also documented in the environmental impact statement. During 1997 and 1998, a study conducted in the summit area to determine the current status of an arthropod community revealed that significantly fewer wēkiu bugs were captured as compared to results stated in an earlier 1982 study. It is not known whether this difference was due to sampling methods, changing weather patterns, or a number of other variables. Although the environmental impact statement also lists arthropod species identified in the study, the entire science reserve has not been surveyed for a baseline of information. In August 2005, the university initiated a four-year study of the wēkiu bugs life history, habits, and DNA analysis.

Yet another study provides a cultural impact assessment focused on identifying native Hawaiian cultural practices, features, and beliefs associated with the science reserve master plan project area. The principal information source was the master plan’s oral history and consultation study that included a total of 15 recorded interviews with 22 different individuals and consultation with more than 100 individuals. The study identifies traditional and customary practices, traditional cultural properties, and contemporary cultural practices in the science reserve. The identification of these significant practices and properties indicates that Mauna Kea’s summit could be eligible for inclusion in the National Register of Historic Places. The university needs to complete the inventory of cultural and natural resources to document the

importance of providing increased protection to the mountain. This is part of what is needed to complete its comprehensive and integrated resource management plan.

Department of Land and Natural Resources’ Advancements in Oversight Need To Go Farther

The department has made some improvements in managing Mauna Kea

The Department of Land and Natural Resources has made improvements in protecting Mauna Kea’s natural resources, such as implementing a tracking system for land transactions, and more aggressively fining the university for conservation district use permit violations. The department has also integrated environmental conditions into the conservation district use permit process. These steps, however, still fall short of protecting Mauna Kea’s natural and cultural resources.

Since the prior audit, two significant events involving the department’s oversight of Mauna Kea demonstrate the department’s positive steps and highlight areas needing further improvements. One event was the contested case hearing resulting from the Institute for Astronomy’s application, on behalf of the Keck Observatories, for a conservation district use permit. The second event involved violations of existing Mauna Kea conservation district use permit conditions, which resulted in a \$20,000 fine. These permits are held by the institute on behalf of the university’s Mauna Kea tenants.

Environmental mitigation measures have recently been imposed as permit conditions

As part of the State’s conservation district, Mauna Kea is accorded protection under the department’s permitting and administrative processes. The permitting process allows the department to examine proposed land uses and to grant or deny a conservation district use permit. We found that, since our last audit, the department has improved its application processing by adding environmental protection requirements as permit conditions. For example, in 2001 the Institute for Astronomy submitted an application for a conservation district use permit on behalf of the Keck Observatories’ outrigger project. Exhibit 2.5 shows the Keck Observatories around which the outriggers will be located.

After several years and an extensive contested case hearing on the institute’s application, the Board of Land and Natural Resources ultimately approved the permit, which contains 21 general and 17 special environmental conditions. Some of the 17 conditions are unusual because they do not involve the applicant and beneficiary of the permit—in this case, the Institute for Astronomy. The conditions that follow involve the Office of Mauna Kea Management and address the need for

Exhibit 2.5 Proposed Location of the Keck Observatories' Outriggers



The Keck Observatories' Outriggers are proposed to be located around the center two white observatories.

Source: Office of the Auditor

protection of Mauna Kea's resources during construction of the Keck outriggers. Some of the conditions also touch on longer term protection of resources such as the requirement for an integrated resource management plan.

- Continued existence of the Office of Mauna Kea Management and the Mauna Kea Management Board.
- Oversight by the Office of Mauna Kea Management over compliance on all terms and conditions of the permit and requirement to report to the department any known or suspected non-compliance or violations.
- A written annual report by the Office of Mauna Kea Management, due on June 30 of each year, to the Board of Land and Natural Resources.
- The office's development of a detailed plan, including consultation with native Hawaiian groups, for required historical

and cultural training of all people involved with the construction and installation of the outrigger telescopes and all persons involved in the operation and maintenance of the outrigger telescopes.

- An on-site construction monitor selected by the Office of Mauna Kea Management with the concurrence of the department.
- An on-site trained entomologist selected by the Office of Mauna Kea Management to monitor any impacts upon the wēkiu bug.
- An integrated resource management plan developed within two years by the Office of Mauna Kea Management, in consultation with interested native Hawaiians.

Some property transactions are now systematically monitored

In our prior audit, we noted that land transactions between the department and the university were untimely. The Board of Land and Natural Resources, for example, approved withdrawal of the science reserve from the Mauna Kea Forest Reserve in 1986. However, the documents actually withdrawing the science reserve were not signed by the governor until August 1997. Similarly, the protracted approval of the Hale Pohaku lease took place after the university began making significant renovations to on-site buildings. Only after the university inquired about the transaction did the Land Division issue a lease. Although the board had approved the lease in 1986, it was not executed until September 1999, over a decade later. Another delayed transaction was the disposition of an easement and right of way for the Mauna Kea access road from Hale Pohaku to the summit. The board approved the disposition in 1974, and the document was signed in September 1981.

Since our prior audit, the department has implemented the State Land Information Management System (SLIMS) to monitor significant land transactions during the department's approval process. SLIMS is a computer inventory database that tracks deadlines and information including tenant names, rent due dates and renegotiation dates. Only encumbrances since 2000 are currently in the system. The department vault contains approximately 60,000 documents that will eventually be added to the system as time and staffing resources permit.

If this computer inventory continues to function as envisioned, it should assist the department in tracking deadlines and ensuring that appropriate documents are completed on a timely basis. Such practices would provide better protection for the state's resources since documents will be completed before any activity or use occurs. The department should

vigilantly anticipate any permit modifications that may need to be done before construction begins on site, such as with the Keck outrigger project.

Administrative rules have been adopted for Chapter 6E, Historic Preservation Program

Since our audit was issued in February 1998, the department has adopted rules for Chapter 6E, HRS, entitled “Historic Preservation.” The rules, which provide guidance and direction for those who must comply with Chapter 6E’s historic preservation requirements, took effect in December 2003 and cover ten areas. The areas include procedures for historic preservation reviews; standards for various types of archeological surveys and reports; requirements for archaeological site preservation; and professional and permit qualifications. The historic preservation division wants to simplify the rules but believes it may take some time before a review is completed.

At the time of our prior audit, the division was short-staffed and it appears as though it still faces this challenge. The high percentage of vacancies raises the question of whether the division can fulfill its duties regarding Mauna Kea. The division needs to re-evaluate the historic preservation management plan, monitor historic sites, and enforce any violations that may be occurring. Even at present, based on reports, sites have been altered. Without such attention, the condition of historic sites on Mauna Kea may deteriorate.

The department has not embraced its role as landowner

In recent years, the department has passively allowed the university to fulfill the department’s role of landowner. As a result, departmental management plans and its monitoring and enforcement efforts have been thought of as subordinate to what the lessee—or, the university—would do. This lax attitude is reflected in the department’s failure to update the papers that define its relationship with the university, allowing the institution to oversee its own activities and not provide a mechanism to ensure compliance with lease and permit requirements.

Leases, subleases, and permits have not been updated

There are two leases and an easement between the department and the university for Mauna Kea. They cover the summit area known as the Mauna Kea Science Reserve, the mid-level support facility at Hale Pohaku, and the Mauna Kea access road from Hale Pohaku to the summit. They took effect in 1968, 1986, and 1974, respectively. The lease and easement, for the science reserve and the road, run through 2033; for Hale Pohaku they continue through 2041. Subleases also exist between the university and the observatories. Under General Lease No.

S-4191, the university requires prior written approval of the Board of Land and Natural Resources before entering into a sublease. In turn, the observatories are not to sublease to others without the prior written consent of the department and the university. In addition to the leases and subleases, conservation district use permits and commercial permits involving the science reserve have been issued by the department.

Conservation district use permits are handled by the Office of Conservation and Coastal Lands, which operates under the department director. It keeps its own database on the permits separate from SLIMS and does not have a tickler system for deadlines. Although the office is responsible for enforcing conservation district regulations and permit conditions, the division no longer maintains a permit inspection system. According to the office's administrator, the office lacks sufficient staff to maintain such a system. As discussed earlier, the department pursued a penalty and fines against the university for construction-related permit violations. While the Office of Conservation and Coastal Lands staff vigorously pursued these violations, a request by the department chair became the impetus for the inspection, rather than periodic and systematic inspections. The lack of oversight by the department allows the university and its sublessees unchecked discretion on the use of Mauna Kea and leaves cultural and natural resources at risk for further damage.

The department has also failed to fully embrace its role as landowner with respect to commercial permits. In December 2000, the department transferred the authority to permit commercial operations on Mauna Kea to the university, subject to the approval of the Department of the Attorney General. A university official indicated receipt of an oral opinion by the attorney general's office that the delegation was legal. However, at the time of the 2000 master plan's approval review, the Board of Regents was informed that the Department of Land and Natural Resources remains the primary agency responsible for protection of natural and cultural resources within the science reserve. The board also learned that the department's responsibilities could not be delegated without legislative or constitutional action.

The department should receive a written opinion from the Department of the Attorney General explaining the authority to delegate commercial permitting functions and responsibilities to a non-departmental entity. Since the university has declined to receive the actual files and permits, the department still houses the permits and receives rental payments from the permit holders, which are deposited into the general fund. The rapidly increasing number of visitors to Mauna Kea demands immediate attention to this issue.

Whether all authority to manage commercial permits has been delegated properly, the responsibility continues to rest with the department. The department must embrace its duty to administer commercial permits until such time as the university is willing and able to actively take on these responsibilities. The department should also update the leases and subleases so that it may directly fine the subleasing observatories for violations. Directing responsibility for penalties and fines to the actual violators would induce the observatories to be more aware of their obligations under the permits. Furthermore, implementing and enforcing a conservation district use permit monitoring system would help to prevent further damage to Mauna Kea and hold the university and its sublessees accountable.

Divisions' efforts to protect Mauna Kea's natural resources are uncoordinated

Although the department has many divisions, only five divisions have responsibility for Mauna Kea. When those five divisions occasionally work with one another, such efforts seem to be short-lived and sporadic. Divisions with routine interactions have set up forms and processes to streamline their efforts. For example, the Land Division may ask DOCARE to check on any negative history of an applicant for a commercial permit. Similarly, the Office of Conservation and Coastal Lands occasionally asks DOCARE to inspect the activities of conservation district use permit holders. Each division, however, only becomes aware of another division's requirements or needs when a request for services is made.

The Historic Preservation Plan has not been completed

Although the department was contracted in 1999 by the university to prepare a historic preservation management plan, the plan remains incomplete. The historic management plan was meant to define the direction of management initiatives on Mauna Kea. The department's tasks included providing a historic sites inventory and protection and enforcement plans. However, the plan was not finalized since it necessitated a number of precursor steps, such as: 1) coordinating the Office of Mauna Kea Management and the department's management, rules, or agreements with respect to historic preservation on the mountain; 2) consulting with the native Hawaiian community and other parties on management initiatives; and 3) developing subsidiary plans, guidelines, and other documents to implement the initiatives.

A cultural management plan, recommended in the master plan, also has not been completed. The cultural plan could apply to individual users and specify controls for protecting designated area. Without planned protections and commitments to implement plans, irreversible damage to Mauna Kea's historic and cultural resources is likely to continue.

Implementation of an incomplete historic preservation plan leaves historic sites at risk. It is imperative that the department's historic preservation division support the Office of Mauna Kea Management's completion of the plan. This work is needed to protect the quickly changing cultural and historic landscape and rescue historic sites from continuing damage.

A comprehensive management plan for the Mauna Kea Ice Age Natural Area Reserve has yet to be developed

In addition to the science reserve leased to the university, the department is entrusted with managing the Mauna Kea Ice Age Natural Area Reserve, which includes the historic landmark known as the Mauna Kea adze quarry. The Natural Area Reserves System, managed under the department's Division of Forestry and Wildlife, was created by the Legislature in 1970 when it enacted Chapter 195, Hawai'i Revised Statutes. The Legislature believed that unique natural assets of the state should be protected and preserved. Responsible for the entire reserves system, the department can set aside state-owned land for placement in the system and make rules and regulations to govern the use, control, and protection of the reserves system. The department is required to prepare a comprehensive management plan for areas in the reserves system and is empowered to enforce the laws, rules, and regulations applying to the reserves. In addition, the Board of Land and Natural Resources may impose administrative fines, fees and costs, and bring legal action to recover those fees and costs.

At present, the division and department have no management plan specifically for the Mauna Kea Ice Age Natural Area Reserve. General guidelines exist in a document entitled "Management Policies of the Natural Area Reserves System," dated May 23, 1997, which covers the whole reserves system. It prioritizes use of the reserves by placing conservation as the highest priority, public use next, and commercial activity only if commercial activity does not impinge on natural resources and use by the general public. If restrictions or controls need to be imposed, they will first be levied upon commercial operators. While general guidelines such as these priorities are helpful, a management plan specific to Mauna Kea would identify the division's resource needs to provide better protection of the historic sites and landmarks located within the reserve. Without a plan, monitoring of the area rests precariously on the initiative of the science reserve rangers, who are university personnel, and the availability of DOCARE officers to respond to threatening situations.

Conclusion

Mauna Kea is a special place valued by the people of Hawai‘i and by astronomers throughout the world. This value demands the highest level of protection and preservation. While the University of Hawai‘i and the Department of Land and Natural Resources have made some positive changes to protect Mauna Kea and the science reserve, much remains to be done.

The university must be ever vigilant and mindful as steward of the entire science reserve for all of Hawai‘i. The department needs to reaffirm and recommit to its duties as keeper of the State’s conservation district, which includes Mauna Kea. Moreover, both agencies must keep dialogue and cooperation flowing between them to update the master plan, develop plans for managing and preserving Mauna Kea’s resources, and keep watch over this special place.

Recommendations

1. The University of Hawai‘i should:
 - a. obtain the authority to promulgate administrative rules for the Mauna Kea Science Reserve to authorize the Office of Mauna Kea Management to protect cultural and natural resources;
 - b. revise and update planning documents, including the master plan and leases and subleases, that will clearly assign roles and responsibilities for managing Mauna Kea and reflect stewardship matters resolved with the Department of Land and Natural Resources;
 - c. develop, implement, and monitor a comprehensive management plan for natural, cultural, and historic resources of the summit and Hale Pohaku area; and
 - d. implement and enforce a permit and sublease monitoring system for astronomy precinct observatories to promote responsible stewardship and prevent damage to the environment.
2. The Department of Land and Natural Resources should:
 - a. revise and update leases, subleases, and permits with the University of Hawai‘i to resolve stewardship issues;
 - b. implement and enforce a permit monitoring system to prevent further damage to Mauna Kea and hold accountable the University of Hawai‘i and other responsible parties;

- c. increase communication between the divisions involved in the management of Mauna Kea by creating a mechanism for collaboration, especially for monitoring post-permit application activities;
- d. support the Office of Mauna Kea Management's completion of the historic management plan for Mauna Kea;
- e. complete a management plan for the protection of the Mauna Kea Ice Age Natural Area Reserve; and
- f. seek a written legal opinion from the Department of the Attorney General regarding the transfer of commercial permitting to the university.

Appendix A Status of 1998 Recommendations

Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve, Report No. 98-6 Recommendations	Current Follow-Up Findings
<p>1. The University of Hawai'i should ensure that the Institute for Astronomy carries out the following responsibilities in a timely manner:</p> <p>a. Begin the master planning process for the next iteration immediately. In doing so, the Institute for Astronomy should specifically:</p> <ol style="list-style-type: none"> 1) include the Department of Land and Natural Resources in the early planning process; 2) solicit public input early in the process; 3) develop milestones, and specific timeframes to complete and implement the plan, and other controls to ensure that the plan is implemented; and 4) ensure that the plan addressed cultural and historical issues. <p>b. Ensure that the new master plan and environment impact statement specifically identify on maps:</p> <ol style="list-style-type: none"> 1) areas suitable for types of astronomical developments; 2) critical habitats of plants, invertebrates, and other rare or endangered species; and 3) areas where no development should be planned (no-build zones). 	<p>In Spring 1998, the university president established the Mauna Kea Advisory Committee to begin the master planning process. Group 70 International, Inc. was hired to guide the planning process and provide professional advice.</p> <p>Department of Land and Natural Resources representatives were involved early in the planning process as members of the Mauna Kea Advisory Committee. The committee met from June 1998 to August 1999.</p> <p>The Mauna Kea Advisory Committee held two series of public meetings in Hilo, Kona, and Waimea between August 1998 and May 1999 to gather public input on conditions under which future development should occur on Mauna Kea.</p> <p>The master plan included milestones and timeframes for completion and implementation; however, some milestones have yet to be completed. The master plan also created the Office of Mauna Kea Management that has established some controls for the mountain, such as ranger program that provides visitors with educational and safety information and monitors the summit for trash.</p> <p>The master plan included a 1999 cultural impact assessment that focused on Hawaiian cultural practices, features, and beliefs. The plan also included a 1999 survey of archaeological sites within 3,000 acres of the science reserve. However, 73 percent of the science reserve still needs to be surveyed for archaeological sites.</p> <p>The master plan and accompanying environmental impact statement contain maps that identify:</p> <p>the astronomy precinct, which confines current and future astronomy facilities to approximately 525 acres (less than 5 percent) of Mauna Kea's summit;</p> <p>critical habitats of plants and invertebrates, including ferns and lichen, and the wēkiu bug;</p> <p>areas outside the astronomy precinct as no-build zones, particularly undeveloped pu'u (hills).</p>

Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve, Report No. 98-6 Recommendations	Current Follow-Up Findings
<p>c. Establish controls, including but not limited to:</p> <ul style="list-style-type: none"> 1) development and implementation of rules and regulations for development and public access in the summit and Hale Pohaku area; 2) hiring of ranger/guides to staff the Hale Pohaku Visitor Information Station on a daily basis; 3) at a minimum, registering of public visitors to receive education and safety information; and 4) periodic inspections and documenting of inspections to control trash. <p>d. Remove remnants of old equipment or seek Board of Land and Natural Resources' approval to abandon remains.</p> <p>e. Develop a forum for continuous community input.</p>	<p>In the 2005 legislative session the university sought authority to promulgate rules via Senate Bill 904. However, the measure failed to pass out of committee. The university plans to seek this authority again in the 2006 legislative session.</p> <p>The Office of Mauna Kea Management established the ranger program in 2001. Rangers staff the summit and Hale Pohaku Visitor Information Station on a daily basis.</p> <p>The rangers provide visitors with educational and safety information. However, they do not register visitors.</p> <p>The rangers conduct daily inspections of individual observatories which are documented in daily reports. The rangers also spend considerable time picking up trash.</p> <p>The university has removed the remnants of a weather tower on the northwest plateau and concrete guy-wire anchors on Pu'u Poliahu.</p> <p>The Mauna Kea Management Board is the main community voice for activities and development planned for the science reserve. The board is subject to the Sunshine Law, Chapter 92, Hawai'i Revised Statutes. As such, board meetings are open to the public.</p>
<p>2. As a part of the new master plan, the Institute for Astronomy should develop a new method of measuring the impact of future development on Mauna Kea and present this method to the Board of Land and Natural Resources for approval. The new method should assess the impact of each project, as well as the impact of total development. The university should use this methodology to state a specific carrying capacity. It should also address facilities other than telescopes and areas not necessarily in the science reserve. The method should distinguish and gauge the impact on land area, biota/fauna, and sites of historic/cultural significance.</p>	<p>The university established and approved the master plan in 2000. The Board of Land and Natural Resources utilizes the conservation district use application process and environmental assessment and environmental impact evaluations to review each project for approval.</p> <p>The master plan outlines the design review process for all development within the science reserve. The process assesses the impact of each project, as well as the impact of total development, on known archaeological, cultural, and natural resources. The process also requires review and recommendation by the Office of Mauna Kea Management and its board and the design review committee at the university-system level. However, the master plan's design review process is confusing and does not define project categories or assign responsibility for oversight of the process. The authority for designating the design review committee has been transferred to the university Hilo chancellor. However, the design review committee has not been formally established. Since a defined limit for future development could not be reached, the university has not established a carrying capacity for</p>

Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve, Report No. 98-6 Recommendations	Current Follow-Up Findings
	<p>the mountain. Instead, the astronomy precinct was designated that confines development to less than 5 percent of the science reserve.</p>
<p>3. The Department of Land and Natural Resources should:</p> <ul style="list-style-type: none"> a. Review and rewrite applicable Environmental Impact Statement mitigating measures as specific conservation district use permit conditions. These measures should be enforceable. b. Include conditions that require implementation of management plans. Projected implementation timeframes should be included. c. Establish controls to ensure that future administrative requirements are met in a timely manner. This would include, but not be limited to: <ul style="list-style-type: none"> 1) Permit conditions requiring that subleases be approved before beginning construction. 2) Specific internal deadlines to ensure that leases and land withdrawals are handled before and not after the fact. d. Clarify and ensure that the responsibility for monitoring violations and enforcing rules not related to the Department of Land and Natural Resources rests with the university. e. Complete the Historic Preservation plan and ensure implementation. f. Adopt rules for Chapter 6E, Historic Preservation Program. 	<p>The Department of Land and Natural Resources has added environmental protection requirements as specific conservation district use permit conditions. Although these permit conditions are enforceable, the department does not consider permit monitoring for Mauna Kea a priority and does not systematically monitor permits.</p> <p>The conservation district use application process requires a management plan accompany an application. The department has implemented the State Land Information Management System (SLIMS) to monitor significant land transactions. Currently only encumbrances since 2000 are included in the system. The Land Division plans to add the remaining documents to the system as time and staffing resources permit.</p> <p>The conservation district use application process requires that subleases be approved before construction begins.</p> <p>The SLIMS computer inventory database tracks leases, land withdrawal deadlines, and tenant information. The Land Division maintains the SLIMS system.</p> <p>The Office of Conservation and Coastal Lands is responsible for conservation district use permits. It keeps its own database on permits separate from SLIMS and does not have a tickler system. The office no longer has a permit monitoring system and relies on the university to monitor its own permit activities. Additionally, the Division of Conservation and Resources Enforcement officers are not trained to identify permit violations and consider rangers responsible for enforcement within the science reserve.</p> <p>The management component of the Historic Preservation plan was developed but has not been finalized since a number of precursor steps have not been completed.</p> <p>Since our prior audit, the department has adopted rules for Chapter 6E. The rules cover ten areas and became effective in December 2003.</p>

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Responses of the Affected Agencies

Comments on Agency Responses

We transmitted drafts of this report to the University of Hawai‘i and the Department of Land and Natural Resources on December 14, 2005. A copy of the transmittal letter sent to the University of Hawai‘i is included as Attachment 1. The university's and the department's responses are included as Attachments 2 and 3, respectively. The board did not submit a response.

The University of Hawai‘i expressed its appreciation for the report’s fairness and objectivity in recognizing its progress in managing Mauna Kea and implementing many of the key recommendations made in the previous audit. The university agreed with the audit findings and recommendations, particularly with the recommendation to obtain administrative rule-making authority to enable its protection of Mauna Kea’s resources. The university also acknowledged the need to clarify its planning documents and to implement and enforce a permit and sublease monitoring system for astronomy precinct observatories to prevent damage to the environment. Minor editorial changes requested by the university for clarification were incorporated into the final report.

The Department of Land and Natural Resources provided both general and specific comments to the audit, and disagreed with some of the recommendations as being unnecessary or problematic. In its general comments the department noted that there have been improvements in the management of Mauna Kea since our prior audit, and that some improvements are ongoing, such as heightening communication between the divisions and completing a management plan for the Mauna Kea Ice Age Natural Area Reserve. The department agreed that it should continue these efforts and that it should support the University of Hawai‘i’s completion of the historic preservation plan for Mauna Kea.

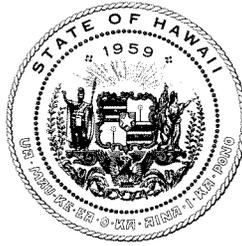
The department questioned our recommendation to update the leases, subleases, and permits. We recognize that existing terms and conditions of these documents are binding, but the agreements are dated and do not fully address shared roles and responsibilities, and natural and cultural resource stewardship of the mountain. The department believes including this recommendation in the report could “create an irresolvable legal quandary for the state, lessees, and permit holders.” However, the department does not acknowledge that parties to a document can agree to change the terms of the document to reflect changes in statute and roles and responsibilities.

The department objected to the recommendation to obtain a written opinion from the Department of the Attorney General regarding the transfer of commercial permits to the University of Hawai'i, since an oral opinion was provided on the issue. However, it is critical to memorialize the transfer of this authority for perpetuity and historical reference for the department, the university, and the State. Accordingly, we stand by our recommendation for the department to obtain a written opinion.

Our recommendation to implement and enforce a permit monitoring system prompted a response from the department that there has been no damage to natural or cultural resources due to the lack of such a system. However, we found that the inspection that imposed a \$20,000 fine to the university for conservation district use permit violations was initiated by a verbal request from the department's director and was not the result of a routine inspection. Division personnel responsible for conservation district laws and rules enforcement also confirmed that they do not have a permit monitoring system, although they did have one in the past. Furthermore, the division contends that such a system is not needed since its officials do not suspect many violations are occurring. The purpose of our recommendation is to monitor activity to prevent harm to Mauna Kea's environment rather than responding to problems after they have occurred.

Finally, the department expressed concerns about the language of our findings regarding its lack of oversight on Mauna Kea. We do not dispute that the department has considered land use on Mauna Kea for years or that it responds to complaints and concerns regarding the use and management of the mountain. However, the department's oversight must extend beyond permit approval and complaint investigation. It must monitor its tenants' activities to ensure that the State's assets are carefully protected and best used for everyone concerned. A minor editorial change requested by the department was incorporated into the final report.

STATE OF HAWAII
OFFICE OF THE AUDITOR
465 S. King Street, Room 500
Honolulu, Hawaii 96813-2917



MARION M. HIGA
State Auditor

(808) 587-0800
FAX: (808) 587-0830

December 14, 2005

COPY

The Honorable David McClain
Interim President
University of Hawai'i
Bachman Hall
2444 Dole Street
Honolulu, Hawai'i 96822

Dear Dr. McClain:

Enclosed for your information are three copies, numbered 6 to 8, of our confidential draft report, *Follow-Up Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve*. We ask that you telephone us by Friday, December 16, 2005, on whether or not you intend to comment on our recommendations. If you wish your comments to be included in the report, please submit them no later than Monday, December 19, 2005.

The University of Hawai'i Board of Regents, Department of Land and Natural Resources, Governor, and presiding officers of the two houses of the Legislature have also been provided copies of this confidential draft report.

Since this report is not in final form and changes may be made to it, access to the report should be restricted to those assisting you in preparing your response. Public release of the report will be made solely by our office and only after the report is published in its final form.

Sincerely,

Marion M. Higa
State Auditor

Enclosures



UNIVERSITY OF HAWAII

David McClain
Interim President

December 19, 2005

RECEIVED

Ms. Marion M. Higa
State Auditor
465 S. King Street, Room 500
Honolulu, Hawaii 97813-2917

2005 DEC 19 PM 4:00

OFF. OF THE AUDITOR
STATE OF HAWAII

Dear Ms. Higa:

Thank you for this opportunity to provide the attached comments on the draft report: *Follow-up Audit of the Management of the Mauna Kea Science Reserve*, received on December 14.

As indicated by your office at the outset of this project, the Follow-up Audit primarily focuses on the efforts made by the University and the state Department of Land and Natural Resources (DLNR) to implement the recommendations made in Auditor's Report No. 98-6 during the period FY1998-99 to the present.

The issues surrounding the management of Mauna Kea are complex, and I commend your staff for doing a remarkable job of assessing the multitude of issues and points of view in a short period of time. I trust that your research staff found University personnel to be open and cooperative throughout the audit process.

Again, thank you for the opportunity to comment. If you have any further questions, please contact:

Dr. James Gaines, Interim Vice President for Research
University of Hawai'i, Bachman 201
2444 Dole Street
Honolulu, HI 96822
(808) 956-7490
email gaines@hawaii.edu

Sincerely,

David McClain
Interim President

Attachment

c: Board of Regents

Response from the University of Hawai'i to the State Legislative Auditor

Regarding

Follow-up Audit of the Management of the Mauna Kea Science Reserve

General Comments

- The University appreciates the Auditor's fairness and objectivity in recognizing the progress made by the University in its management of Mauna Kea, as well as the University's success in implementing many of the key recommendations made in the Auditor's 1998 report.
- The University agrees with the Auditor's assessment that more needs to be done to protect Mauna Kea's unique and precious resources – in particular, Auditor's recommendation 1.a., which references the need for the University, through its Office of Mauna Kea Management and the Mauna Kea Management Board, to be granted rule-making authority by the Legislature so they may implement and enforce appropriate management measures on behalf of the University. The University recognizes this responsibility, but was unsuccessful in gaining rule-making authority from the Legislature in the 2005 session. The University will continue its efforts to address this need at the next Legislative session.
- Aside from actions that require rule-making authority, the University has initiated important programs that are needed to develop conservation plans, such as wēkiu bug studies and completing an archaeological inventory of the Science Reserve.
- The University has earnestly strived to refine its roles and responsibilities in cooperation with its community-based partners – the Mauna Kea Management Board (MKMB) and Kahu Kū Mauna – in implementing the Master Plan. The management effort defined by the Master Plan relies on a unique, collaborative effort between the University, DLNR and the community. There is no simple blueprint, nor are there easy answers. Rather, each step of the implementation process requires a constant review of the Master Plan and refinement of the respective roles and responsibilities of OMKM, MKMB and Kahu Kū Mauna.

Requested Changes, Points of Clarification

The University asks that the Auditor consider the following changes to the current draft for the sake of clarification:

- **Page 1, Par. 2, 2nd sentence:**
We suggest changing "its" to "the University's" to make it clear that University is the lessee, as is correctly noted on Page 2

"At the time, the University of Hawai'i Institute for Astronomy was the steward of the Mauna Kea Science Reserve under it's (the University's) lease with the Department of Land and Natural Resources;"

- **Page 15, Par. 3, 2nd sentence:**
Change “antennas” to “auxiliary light collectors” and “radio waves” to “light” The changes are to correct technical inaccuracies.

“By this definition, ~~antennas~~ (auxiliary light collectors) such as those proposed for the Keck outriggers project, are not “telescopes,” since they only collect ~~radio waves~~-(light) and cannot provide astronomy observations.”

- **Page 23, Par. 2, following 2nd sentence:**
Add a statement clarifying that problems were corrected.

“The University and the observatories took corrective action and resolved all of the violations.”

- **Page 13, Par. 2, 3rd sentence; Page 23, Par. 3, 1st sentence; Page 33, recommendation 1. d.:**
Remove the word “further.” The use of the word “further” implies there was damage resulting from items cited as non-compliant with the associated conservation district use permits. Vigilant monitoring is important, of course. However, in this context, the infractions cited – such as the late removal of temporary structures – were minor and did not result in any damage to the summit.

“Such issues, if left unaddressed, increase the likelihood of ~~further~~ harm to the science reserve’s vulnerable environment.” (Page 13, Par. 2, 3rd sentence)

Without vigilant monitoring of it observatory tenants for compliance with conservation district use permits, the university risks ~~further~~ damage to the summit,...” (Page 23, Par. 3, 1st sentence)

“implement and enforce a permit and sublease monitoring system for astronomy precinct observatories to promote responsible stewardship and prevent ~~further~~ damage to the environment.” (Page 33, recommendation 1.d.)

Responses to Auditor’s Recommendations

The University of Hawai‘i should:

- 1.a. **obtain the authority to promulgate administrative rules for the Mauna Kea Science Reserve to authorize the Office of Mauna Kea Management to protect cultural and natural resources;**

The University strongly agrees with the Auditor’s conclusion that the OMKM and MKMB needs to be granted rule-making authority by the Legislature in order to more completely fulfill its obligations in managing the Mauna Kea Science Reserve. Furthermore, the University submits that the lack of this rule-making and enforcement authority undermines the University’s ability to act on several key issues, including

managing public access, protecting cultural and natural resources, signage, and defining roles and responsibilities relative to other departments and agencies:

“However, critical management issues, such as the lack of administrative rule-making and enforcement authority, unresolved public access control, weak permit monitoring, and indeterminate management plans, continue to hamper the university’s efforts to protect Mauna Kea’s resources.” – Auditor’s Report

As stated at the outset of this report, the University has submitted legislation for rule-making authority and will continue to do so until the matter is addressed.

1.b. revise and update planning documents, including the master plan and leases and subleases, that will clearly assign roles and responsibilities for managing Mauna Kea and reflect stewardship matters resolved with the Department of Land and Natural Resources;

The Auditors’ report states that the University has added to the complex web of responsibility “by tolerating different management documents without resolving inconsistencies between them or consolidating them into one comprehensive management plan.” The report mentions the 1995 BLNR-approved management plan (1995 BLNR Management Plan) and the management plan contained in the 2000 Master Plan (MP Management Plan).

There needs to be a clear understanding that the Master Plan, including the Chapter X, Management Plan, is a planning policy guide. Specifically, the MP Management Plan proposes several policies and strategies “to integrate and balance the natural, cultural, educational, research and recreational values of Mauna Kea within a framework that provides responsible stewardship of the resources.” (2000 Master Plan, page X-9)

The 1995 BLNR-approved Management Plan contains specific language relating, for example, to recreational and educational activities, hours of operation, prohibited uses, alcohol use, and commercial activities.

One of the goals the University is currently working on is the development of an integrated cultural and natural resources management plan that is guided by the policies, strategies and objectives of the 2000 Master Plan (see comments to 1.c.). Such a plan, however, is meaningless without corresponding enforceable administrative rules. Together, the integrated plan and rules will clearly assign roles and responsibilities for managing Mauna Kea.

1.c. develop, implement and monitor a comprehensive management plan for natural, cultural and historic resources of the summit and Hale Pohaku area; and MKMB’s environment committee is in the process of developing a framework for a natural resources management plan. An archaeology monitoring plan is being developed in conjunction with a project to inventory the Science Reserve. The natural resources and archaeology monitoring plans will be combined into an integrated management plan.

1.d. implement and enforce a permit and sublease monitoring system for astronomy precinct observatories to promote responsible stewardship and prevent further damage to the environment.

The Auditor points out that Mauna Kea rangers diligently patrol the summit and inspect individual observatories for trash and equipment, as well as monitor observatory activities. To further maximize the effectiveness of the rangers, OMKM will provide rangers with copies of all current Conservation District Use Permits and corresponding checklists. The latter will be used by rangers during their periodic inspections of the observatory properties.

Additional Comments

Ranger Program

In addition to the services cited in the Auditor's report, Mauna Kea rangers have also proven their value by:

- Monitoring neighboring DLNR forest reserve and Natural Area Reserve (NAR) lands;
- Preventing forest fires;
- Rescuing lost and distressed hikers in DLNR forest reserve lands; and
- Responding to violations occurring in the NAR.
- Looking after the health and safety of visitors, including hikers. Although lacking the statutory authority to require hikers to register at the Visitor Information Station all visitors are asked to voluntarily register.

Design Review Process

The process prescribed in the 2000 Master Plan for review of new development in the science reserve has yet to be fully tested for a major project. As the process has recently been employed, we have the opportunity to assess its efficacy and practicality, and determine whether or not the process should be re-evaluated and/or modified. As with all new endeavors, assessment and evaluation are keys to ensuring success.

Environmental Protection

OMKM, in cooperation with the University of Hawai'i at Hilo, hired an Environmental Safety Technician. This individual will work directly with individual observatories and allow the University to take a more proactive approach to environmental protection and industrial safety issues.

Cultural and Natural Resources inventory

Cultural

A cultural inventory of the 525-acre astronomy precinct, the area most impacted by human activity, was completed in September 2005.

OMKM and the Mauna Kea observatories are funding a three-year archaeological study that will include inventorying the Science Reserve. Fieldwork is scheduled to begin in Summer 2006.

Natural Resources

Because of the federal status of the wēkiu bug, this species has been given highest priority for studies and monitoring. Surveys of the wēkiu bug were initiated in Spring 2002 and are ongoing. These surveys are helping to assess the range of its habitat. New information has revealed the bug's range extends outside the astronomy precinct.

Beginning in August 2005 OMKM and the Mauna Kea observatories initiated a four-year study of the wēkiu bug's life history, habits and DNA analysis.

Conclusion

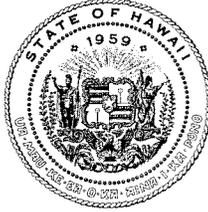
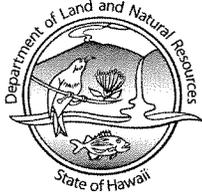
The University finds that the Auditor's report as a whole fairly represents both the successes and the shortcomings in the University's effort to improve its management of the Mauna Kea Science Reserve and to implement the recommendations contained in the Auditor's 1998 report. The University continues to make progress and will again approach the state Legislature to obtain the rule-making authority it needs to more completely fulfill its duties and obligations as stewards of this most treasured natural, cultural and educational resource.

Finally, while the University realizes that this audit was conducted according to generally accepted government auditing standards, such standards by their nature cannot account for cultural considerations that are particularly prevalent in Hawai'i. It is difficult to explain or to quantify the importance of interpersonal communications and cultural considerations on the progress and implementation of project review and decision-making processes in our Island community.

The University submits that the most valuable and telling documents are the names of community leaders who have courageously stepped forward in the face of controversy to serve key roles in the process. The Legislature needs to stop and look at the names of those who have voluntarily contributed their time and expertise as members of the Mauna Kea (Master Plan) Advisory Committee, Ahahui Kū Mauna, Kahu Kū Mauna, Mauna Kea Management Board and functional committees of the MKMB to understand how broadly the community is now involved in the management process.

A high level of cynicism and suspicion greeted the University, the IfA, UH Hilo, OMKM, MKMB and Kahu Kū Mauna as they collectively began the process of implementing the Master Plan in late 2000. It takes time to allow for dedicated and passionate people with different backgrounds and conflicting interests to trust and respect each other enough to discuss their differences and explore solutions in a constructive manner. The University submits that while it may never be able to please everyone, the greatest progress made since the year 2000 is in kindling trust and constructive dialogue and initiating a significant cultural shift in how Mauna Kea is perceived and how it is treated.

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
DEPUTY DIRECTOR

DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

December 19, 2005

DEC 19 2005

The Honorable Marion M. Higa
State Auditor
Office of the Auditor
465 South King Street, Room 500
Honolulu, Hawaii 96813-2917

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2005 DEC 19 PM 1:24

OFF. OF THE AUDITOR
STATE OF HAWAII

Dear Ms. Higa:

SUBJECT: Department of Land and Natural Resources' Response to a Follow-up Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve

Thank you for giving us the opportunity to provide comments on the draft report. We are pleased that the draft report highlighted improvements in the Department of Land and Natural Resources' (DLNR) management of Mauna Kea. The report further recommended the following actions:

1. Revise and update leases, subleases and permits with the University of Hawaii to resolve stewardship issues.
2. Implement and enforce a permit monitoring system to prevent further damage to Mauna Kea and hold the University of Hawaii and other responsible parties accountable.
3. Increase communication between the DLNR divisions involved in the management of Mauna Kea by creating a mechanism for collaboration, especially for monitoring post-permit application activities.
4. Support the Office of Mauna Kea Management's (OMKM) completion of the Historic Management Plan for Mauna Kea.
5. Complete a management plan for the protection of the Mauna Kea Ice Age Natural Area Reserve.
6. Seek a written legal opinion from the Department of the Attorney General regarding the transfer of commercial permitting to the university.

Updating Leases, Subleases and Permits

The report recommends updating and revising leases and permits, but does not provide any details or guidance on the specific lease or permit elements to be changed. Further, to the extent the recommendation is intended to apply to existing leases and permits, then we do not believe it would be proper or legal to amend or revise any condition during the term of any lease or permit. The State is obligated to honor the terms and conditions of its agreements, including leases and permits.

Lessees and permittees are afforded certain rights and responsibilities when they agree to terms and conditions of legal documents. A lease or permit constitutes a “contract” between two parties. If terms and conditions have been fulfilled, it would be improper for government to try to revise or update the contract in the middle of its term.

Furthermore, we do not understand the comment about updating the subleases. BLNR issued a direct lease to UH for the Mauna Kea site. UH issues and manages its own subleases. Except for BLNR's consent to a sublease, neither the Board nor the department is involved with negotiating the terms or conditions of any sublease. Those terms and conditions are within the purview of UH and its sublessee. Finally, we are not aware of any outstanding Lease, Sublease or Permit issue, and therefore question the need for such actions.

We urge that this recommendation be deleted from the report as it could create an irresolvable legal quandary for the state, lessees and permit holders.

Enforcement of Permit Conditions

Contrary to your statements, the Office of Conservation and Coastal Lands (OCCL) does monitor and require permit compliance on major Conservation District Use Permits (CDUP). Staff has, in the past, asked the Institute for Astronomy for permit compliance reports.

In 2004, OCCL staff conducted a site inspection to investigate permit compliance and other issues within the Science Reserve. In that investigation, we uncovered nine (9) violations. Although the BLNR imposed a \$2,000 fine for each violation, none posed a serious threat to cultural, biological or recreational resources. Of the nine, two violations involved permit non-compliance.

One of the permit violations involved several round-shaped concrete foundations supporting the Smithsonian Astrophysical Observatory Sub Millimeter Array antennas. The permit condition required that the pads be painted to blend in with the environment. The pads had been painted, but the paint peeled off in some cases due to the extreme temperatures. The other involved a temporary fence barrier surrounding the Clerk Maxwell Telescope that was to be taken down during certain times of the year. The fence was observed in place at the time of the inspection. The University was fined \$2,000 for each of these violations and both were corrected immediately.

In our experience, we have found that permittees generally comply with permit declarations that are binding of them and any future landowners. Thus, our main area of focus has been on enforcement of unauthorized land uses. The OCCL deals with a great number of unpermitted land uses throughout the State, rectifies such actions and collects thousands of dollars in fines each year.

These actions range from the removal of illegal seawalls, multi-million dollar fines for coral reef damage, and thousands of dollars in fines for illegal tree removal and destruction of forest resources. The OCCL and the BLNR take a hard stance on these matters and try to deter others from committing violations.

The statement that DLNR should implement a permit monitoring system to “prevent further damage to Mauna Kea” is clearly spurious. The draft report does not provide any examples of damage to natural or cultural resources to Mauna Kea because the DLNR failed to have a permit monitoring system in place.

Increase Communication Between the Divisions Involved in the Management of Mauna Kea

Improvement of communication between DLNR divisions is an ongoing effort. The DLNR already has mechanisms in place for collaboration, including regular staff meetings, weekly reports that are disseminated to all DLNR employees, and training DOCARE officers to identify and follow up on Conservation District use violations. The various divisions with oversight on Mauna Kea are already fairly well informed of each other’s responsibility and actions on the mountain. Nevertheless, we will continue to improve interdepartmental communication for oversight on Mauna Kea.

In addition, to improve overall communication between parties with ownership interests associated with Mauna Kea, we started meeting as an informal group known as the Mauna Kea Neighbors. The group was formed in recognition that different landowners along the slopes of Mauna Kea share a responsibility to work together to help protect and manage the area.

A series of periodic meetings began in early 2004, and continue today. Landowners take turns hosting meetings with the agenda focused on the activities and accomplishments by the host. Group members are able to learn more about their neighbors and have a chance to see first hand what challenges and opportunities each face on their property. The meetings are a way for landowners to consider opportunities for partnerships.

Completion of Historic Preservation Monitoring Plan

The DLNR agrees with this recommendation that encourages the Historic Preservation Division to support the OMKM in its completion of a historic management plan.

Although, the University of Hawaii is responsible for overseeing the development of a preservation plan for significant historic sites on Mauna Kea, the division will continue to

collaborate with the university and the native Hawaiian community to identify potential preservation initiatives for these sites.

The division will encourage the University of Hawaii to complete its inventory survey of historic sites and, once completed, will review and comment on this report as established under Chapter 276, Hawaii Administrative Rules.

In the meantime, the division will continue to review and comment on proposed development projects at this site, determine their effect on historic properties, and recommend appropriate mitigation measures.

Complete a Management Plan for Mauna Kea Ice Age Natural Area Reserve

The Division of Forestry and Wildlife (DOFAW) has oversight of the Natural Area Reserves System (NARS). We note on page 6 of the draft that it is listed as a separate entity, when indeed it is located within the DLNR's DOFAW.

Staff has been gathering the information necessary to complete a management plan for the NARS. We anticipate a draft being completed within a year.

Creation of the OMKM has greatly facilitated management and protection of the entire summit, and our staff greatly appreciates the presence of the Mauna Kea Rangers.

Seek Legal Opinion Regarding the Transfer of Commercial Permitting to the University

The Board of Land and Natural Resources (BLNR) gave UH the authority to issue, manage and control commercial activity permits within the area leased by UH. Based on the aforesaid Board action, the Office of the Attorney General concluded in a memorandum that UH had the authority to issue, and manage and control commercial activity permits. We also confirmed with the Office of the Attorney General that a "formal opinion" is not necessary, unless the department felt more clarity was required. We have reviewed the memorandum opinion and believe it is crystal clear that UH may issue, manage and control commercial activity permits within the area leased by UH. Therefore, we do not believe a more formal opinion is necessary.

Conclusion

In general, we feel that the draft audit report highlights some of the improvements that were implemented by DLNR after the 1998 State Auditor's Report. However, we have concerns regarding some of the broad sweeping statements that are contained in the report.

For instance, page 29 "The Department has not embraced its role as landowner." Since the 1998 Audit, the DLNR has diligently addressed permit and lease compliance issues on Mauna Kea and there are no outstanding issues in this area, except for possible disagreements regarding oversight of commercial permits. In addition, OMKM was established specifically to help DLNR cover day-to-day

activities, including commercial permits on the mountain in concert with the Revised Management Plan for UH Management Areas approved in 1995. We are not aware of any major problems occurring on the mountain with respect to ongoing uses and activities, and any incidents that do occur are reported to either OMKM or DLNR.

In addition, page 30. "The lack of oversight by the department allows the university and its sublesses unchecked discretion on the use of Mauna Kea and leaves cultural and natural resources at risk for further damage." Not only is this statement inconsistent with the report's content, the statement "unchecked discretion" is patently incorrect. The fact is that the DLNR and the BLNR have considered every land use on Mauna Kea over the past 35 years. In addition, the OCCL has responded to every complaint or concern regarding the use or misuse and management of Mauna Kea. Despite comments in the report to the contrary, the DLNR does monitor activities on the mountain because it is a significant natural and cultural resource for the people of Hawaii.

We feel that there have been significant accomplishments in the management of Mauna Kea since the last audit. Most importantly are the establishment of the OMKM and the presence of OMKM and DOCARE personnel in the field. Working in tandem, and with the support of the community and our elected officials, our agencies will provide the necessary management oversight to protect Mauna Kea's fragile and unique environment from misuse.

Thanks you again for this opportunity to comment on the draft report. Respectfully, we ask that you please consider the facts when assessing our management of Mauna Kea. Please contact me at 587-0401 should you have any further comments on this matter.

Sincerely,


PETER T. YOUNG
Chairperson

cc: Governor Linda Lingle
Office of Conservation and Coastal Lands, DLNR
Division of Conservation and Resources Enforcement, DLNR
Historic Preservation Division, DLNR
Division of Forestry and Wildlife, DLNR
Land Division, DLNR